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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,753	12/20/2006	Katsunori Nagata	5364-0101PUS1	2943
2292 7590 05/24/2010 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747				
EXAMINER				
MULLER, BRYAN R				
ART UNIT		PAPER NUMBER		
3727				
NOTIFICATION DATE		DELIVERY MODE		
05/24/2010		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

### Office Action Summary

**Application No.**

10/588,753

**Applicant(s)**

NAGATA ET AL.

**Examiner**

BRYAN R. MULLER

**Art Unit**

3727

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 February 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 25-38, 45, 47, 48 and 410 is/are pending in the application.
- 4a) Of the above claim(s) 33, 34, 37 and 40-45 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 32, 35, 36, 38, 47 and 48 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Final Drawing Review (PTO-849)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 11/10/2009
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Claims 33-34 and 40-45 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention groups II and III , there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 8/10/2009. Additionally, claim 37 is also hereby withdrawn as being drawn to non-elected species IV and not considered to be an obvious variant of the elected species in view of the prior art.

### ***Specification***

2. The disclosure is objected to because of the following informalities: there are several references in the original application to particular claims and or the invention according to particular claims. However, all of the claims being referred to have been cancelled at this point. Therefore, it is suggested that the applicant remove all reference to any claim numbers in the specification, including the currently pending claims due to the fact that it is possible for any of the pending claims to also be cancelled or amended to include different limitations than currently pending.

Appropriate correction is required.

### ***Claim Objections***

3. Claim 47 is objected to because of the following informalities: the word "diving" in line 2 should be changed to "driving". Appropriate correction is required

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claim 27 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The limitation that the air from the nozzle member flows along the bottom portion of the cleaning case is not supported by the original application. Although the original disclosure does indicate that the nozzle is directed toward the discharge opening such that airflow will direct dust toward the discharge opening, there is no suggestion that the airflow flows along the bottom portion of the case, as claimed. Therefore, for the sake of the current Office Action, the examiner will treat the claim as though the limitation only indicates that the nozzle is directed toward the discharge opening such that airflow will direct dust toward the discharge opening.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 25-28 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiefer (3,986,223) in view of Ernst et al. (6, 543, 078) and Clarke et al. (6,099,691).
8. In reference to claims 25 and 27, Kiefer discloses a cleaning device having a brush (30), at least partially surrounded by walls (surrounded from above and partially on the sides) of cleaning case (18) that is capable of cleaning just and edge of a board (either by positioning only the edge within the apparatus or by cleaning only the leading edge and then removing the board therefrom) to remove dust, an ion injection device (32, 34) for directing ionized gas toward the bristles of the brush and a discharge opening in the top wall of the case for discharging ionized gas away from the cleaning case. However, Kiefer fails to specifically disclose that the ion injection device includes a compressed gas positioned to provide an ionized compressed gas flow directed toward the bristles when the bristles are in contact with an object to remove dust therefrom. Ernst discloses a similar cleaning apparatus having an ion injecting device and a discharge device for removing ionized gas and dust from a member to be cleaned and Ernst further discloses that it is desirable to provide an air knife (known in the art to be a wide nozzle for directing compressed air; also supported by disclosure of Clarke, lines 18-19 of the abstract) that for each ion injection device (32, 34) to produce a curtain-like air stream to direct a cloud of ions onto the targeted surface, even when the surface is irregular (Col. 6, lines 1-8) and wherein the air knives are directed toward the member to be cleaned and along the direction of airflow directed to the discharge opening (air knives 36 and 38 in Fig. 10 are clearly shown as being directed toward

alternate discharge devices 42 and 40, respectively) to clean ionized air and remove dust from any crevices or openings in the member to be cleaned, thus making the cleaning device more effective and efficient. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the apparatus of Kiefer with similar air knives for each ion discharge device, directed towards the discharge opening (even angled slightly inwards toward one another, similar to the configuration of Ernst will direct the airflow toward the discharge opening), as taught by Ernst, to improve cleaning of a member and to allow the apparatus of Kiefer to clean materials and/or objects that may have crevices or openings that may not be contacted by the brushes thereof.

9. In reference to claims 26, 28 and 31, the combination of Kiefer, Ernst and Clarke, as discussed supra, further provides all of the structure set forth in the claims.

10. Claims 29, 30, 35, 36 and 38 rejected under 35 U.S.C. 103(a) as being unpatentable over Kiefer (3,986,223) in view of Ernst et al. (6, 543, 078) and Clarke et al. (6,099,691) as applied to claim 25 and further in view of Sroka (3,915,737).

11. In reference to claim 29, the combination of Kiefer, Ernst and Clarke discloses the apparatus, as discussed supra, and Kiefer further discloses an adjustment mechanism (42) for adjusting the height of the apparatus relative to the work piece being cleaned, but fails to disclose a brush positioning device capable of adjusting the position of the brush inside the cleaning case. Sroka discloses a similar cleaning apparatus for cleaning surfaces and comprises at least one brush in contact with the

surface being cleaned and teaches that the brush may have a positioning device (26) for adjusting the height of the brush within the cleaning case, which will allow a user to adjust the pressure applied to the surface to be cleaned by the brush separate from the position of the case, allows for adjustment of the brush to compensate for wear of the brush and will allow a user to easily remove the brush for replacement if desired.

Therefore, it further would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the brushes (30) of Kiefer with separate individual brush positioning devices, similar to the one taught by Sroka, to allow a user to individually adjust the pressure applied to the surface to be cleaned by each brush separate from the position of the case, allow for adjustment of the brushes to compensate for wear and allow a user to easily remove the brushes for replacement if desired.

12. In reference to claims 30 and 35, the combination of Kiefer, Ernst and Clarke discloses the apparatus, as discussed supra, and Kiefer teaches that the apparatus is provided with electrostatic cleaning capabilities, but fails to specifically disclose what material the brushes (30 or 22) are made from. Sroka discloses a similar cleaning apparatus for cleaning surfaces and comprises at least one brush in contact with the surface being cleaned and also has electrostatic cleaning capabilities, similar to Kiefer, and teaches that the brush preferably comprises non-conductive and conductive bristles, wherein the conductive bristles will be grounded to remove unwanted charges on the surface being cleaned. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide at least one, or all of the

brushes of Kiefer with electrically conductive bristles, as taught by Sroka, to remove unwanted charges on the surface being cleaned.

13. In reference to claim 36, Kiefer further discloses a positioning device (42) that allows for adjustment of the brushes (30) along with the case to move the brushes toward or away from an edge portion of the device at the cleaning position.

14. In reference to claim 38, the combination of Kiefer, Ernst and Clarke provides the apparatus, as discussed supra, including a nozzle member with an oblong orifice to emit compressed air toward a member to be cleaned, as taught by Ernst as discussed supra, which will be capable of providing airflow toward an edge portion of a device.

15. Claims 32, 47 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiefer (3,986,223) in view of Katsuura et al. (JP 2005-211722).

16. In reference to claims 32 and 47, Kiefer discloses a cleaning device having a brush (30), fixed in position in a cleaning case (18) having a gap that is capable of receiving just an edge of a device (either by positioning only the edge within the apparatus or by cleaning only the leading edge and then removing the board therefrom) to remove dust. However, Kiefer fails to specifically disclose that the device includes a drive mechanism to linearly drive the cleaning case in a parallel direction to an edge of the board to remove dust from the edge portion. Katsuura discloses a similar device for removing dust from workpieces and discloses alternate embodiments wherein one embodiment may move the workpiece through a dust removing area provided in a cleaning case for the apparatus and the other maintains the workpiece in a stationary



position while moving the cleaning case along the surface of the workpiece to clean the workpiece (paragraph 67 of machine translation; English equivalent US PG-Pub 2008/0028551, paragraph 82), which would be desirable for use with large or heavy workpieces that are not easily moved and Katsuura discloses that the case may be moved along the surface in the second embodiment by means of a ball screw.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the cleaning apparatus of Kiefer, designed to remain stationary while a workpiece is passed therethrough may alternatively be provided with a ball screw (driving screw shaft) to move the cleaning case relative to a stationary workpiece, as taught by Katsuura, as a know equivalent for the stationary cleaning case of Kiefer to allow for cleaning of large and/or heavy workpieces.

17. In reference to claim 48, it further would have been obvious that the cleaning case would need to have some form of female screw unit interfaced with the ball screw (driving screw shaft) to allow the cleaning case to be moved by means of the ball screw (driving screw shaft).

18. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kiefer (3,986,223) in view of Motoda et al. (6,058,544).

19. Kiefer discloses a cleaning device having a brush (30), fixed in position in a cleaning case (18) having a gap that is capable of receiving just and edge of a device (either by positioning only the edge within the apparatus or by cleaning only the leading edge and then removing the board therefrom) to remove dust. However, Kiefer fails to

specifically disclose that the device includes a drive mechanism to linearly drive the cleaning case in a parallel direction to an edge of the board to remove dust from the edge portion. Motoda discloses a similar device for removing dust from workpieces and discloses alternate embodiments wherein at least one embodiment (Figs. 13 and 15) may move the workpiece through a dust removing area provided in a cleaning case for the apparatus and at least a second embodiment (Fig. 14) maintains the workpiece in a stationary position while moving the cleaning case along the surface of the workpiece with a linear actuator (97) to clean the workpiece, which would be desirable for use with large or heavy workpieces that are not easily moved. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the cleaning apparatus of Kiefer, designed to remain stationary while a workpiece is passed therethrough may alternatively be provided with linear actuator to move the cleaning case relative to a stationary workpiece, as taught by Motoda, as a known equivalent for the stationary cleaning case of Kiefer to allow for cleaning of large and/or heavy workpieces.

20. Claim 47 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiefer (3,986,223) in view of Motoda et al. (6,058,544) as applied to claim 32 and further in view of Matsuno et al. (2001/0054210).

21. In reference to claim 47, as discussed supra, the combination of Kiefer and Motoda provide a cleaning device with a drive mechanism to linearly drive the cleaning case relative to a workpiece to be cleaned, but Kiefer and Motoda fail to disclose that

the drive mechanism includes a driving screw shaft and female screw unit. Matsuno discloses a similar cleaning device using linear actuators to move a cleaning case (6) relative to a stationary workpiece and teaches that a ball screw is a desired linear actuator, being well known in the art and capable of reliable, quick movement in either direction. Therefore, it further would have been obvious to one of ordinary skill in the art that the linear actuator, provided to the apparatus of Kiefer may be a ball screw (driving screw shaft) , as taught by Matsuno, to provide a known, reliable and relatively quick actuator to move the cleaning case of Kiefer.

22. In reference to claim 48, it further would have been obvious that the cleaning case would need to have some form of female screw unit interfaced with the ball screw (driving screw shaft) to allow the cleaning case to be moved by means of the ball screw (driving screw shaft).

### ***Response to Arguments***

23. Applicant's arguments filed 2/18/2010 have been fully considered but they are not persuasive. The applicant first argues the objection to the specification, suggesting that a preliminary amendment to the specification has overcome the objection. However, the preliminary amendment to the specification has been indicated as not entered by the previous examiner. Thus, the objection remains, based on the original specification. The applicant also argues the rejections based on the Kiefer reference because the applicant suggests that the Kiefer apparatus is not configured to contact just an edge portion of a board. However, the limitations in the claims that the cleaning

device only cleans an edge portion of a board is merely a statement of intended use, wherein, as discussed in the previous Office Action and in the rejections above, the Kiefer reference would clearly be *capable* of contacting only an edge portion of a board when only an edge of a board is run under the apparatus or may even be considered to only contact an edge portion when the edge is the leading edge, which may then be removed from the apparatus such that only an edge portion is cleaned.

24. Applicant's arguments with respect to claims 25, 32 and 35 have been considered but are moot in view of the new ground(s) of rejection. The Ernst, Clarke, Katsuura and Motoda references have been combined, either separately or in combination, with the Kiefer reference to make obvious all of the limitations added to the claims in the pending amended claims.

### ***Conclusion***

25. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRYAN R. MULLER whose telephone number is (571)272-4489. The examiner can normally be reached on Monday thru Friday 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Monica S. Carter can be reached on (571) 272-4475. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Bryan R Muller/

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Primary Examiner, Art Unit 3727

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